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IS *BETULA PAPYRIFERA* MARSHALL INDIGENOUS TO OHIO?[1]

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ABSTRACT. *Betula papyrifera* Marshall (Betulaceae) frequently is included in the indigenous Ohio flora. This status is based upon collections from a single tree in Lucas Co., Ohio, in 1934. *Betula alleghaniensis* Britton was collected from the same site at the same time. Neither of these species had been collected earlier in this section of Ohio, and neither has been observed since in the area. Both species are isolated from the main portions of their total range. The true status of *Betula papyrifera* in Ohio may never be known conclusively, but the native origin of the single Ohio tree is at best dubious.

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INTRODUCTION

Betula papyrifera Marshall (paper birch, canoe birch) is a well-known and conspicuous tree of northern North America from Labrador to Alaska. Common in the bulk of its range, it is decidedly rare near its southern limits. These are, in general terms, southern Ontario, southern Michigan, northwest Indiana, northern Illinois, and northeast Iowa, and in the higher elevations of the Appalachians from Pennsylvania to North Carolina and Tennessee.

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Several regional manuals (Braun 1961, Fernald 1950, Little 1971, 1979, Weishaupt 1971) include Ohio in the indigenous range of *Betula papyrifera,* while other authorities (Gleason 1952, Gleason and Cronquist 1963, Roberts and Cooperrider 1982) exclude Ohio from its native range. What is the documentary evidence supporting these conflicting opinions?

DOCUMENTATION

Paper birch first was attributed to the Ohio flora in an unsigned article in the 1934 Yearbook of the Toledo Naturalist Association, Toledo, Ohio (Anonymous 1934). This article describes discoveries in northwest Ohio by Louis W. Campbell of Toledo, among which is the following: "A specimen of the Canoe Birch (*Betula papyrifera*) was found April 15, 1934 in a small valley in the Oak Openings in Swanton Township, Lucas County, about two miles northwest of Whitehouse, Ohio. Only one tree was found. The Yellow Birch (*Betula lutea*) was also found in the vicinity."

Six sheets of *Betula papyrifera* collected by Campbell from this discovery tree are in the herbarium of The Ohio State University (OS). Three specimens of twigs and plates of bark are dated 20 Feb 1934 (OS 26343-26345). Three other specimens dated 26 June 1934 (OS 26346-26348) consist of leaves and twigs; one of which bears aments. The February set of sheets is labelled "oak openings, Lucas Co.", while the June collections are labelled "Swanton Twp., Lucas Co." Attached to one of the February specimens is a holograph letter of 20 Feb 1934 from Campbell to John H. Schaffner, curator of the herbarium, which reads in part: "I am sending separately some twigs and fruit of the betula from the Oak Openings. There is only one tree, much branched from the base and not more than 40 feet high. It grows in a boggy valley a mile from the nearest farmhouse. I don't think it was planted there. The trees all around it are alders." These specimens and the letter from Campbell evidently are the basis for Schaffner's listing of paper birch in a supplement to his earlier catalog of the Ohio vascular flora (Schaffner 1935): "A single tree, evidently native, in a narrow bog in Swanton Twp., Lucas Co. Several trees of *B. lutea* were growing near it."

The first mention of *Betula papyrifera* in Ohio in a regional manual seems to have been in Fernald (1950) where "n. O." is included in the range of this species. The Schaffner publication of the Campbell specimens at OS probably is the source for this reference. There is no Ohio material of *B. papyrifera* at GH (M. Canoso, pers. comm. 1981).

Betula papyrifera is firmly listed as indigenous to Ohio by Braun (1961). She indicates that this species "occurs very sparingly in the 'oak openings' of Lucas County." Braun annotated one of the Campbell collections at OS. Perhaps she was misled by the different wording on the 2 sets of labels. Braun may have assumed that the 6 sheets came from 6 separate trees. A file of herbarium slips, housed at OS, was used to compile distribution data for Braun's book. The only specimens of *B. papyrifera* for which there are slips are the 6 Campbell collections. These 6 sheets, all from a single tree, are the source for Braun's statement that the species "occurs very sparingly."

The collector of these significant specimens still resides in Toledo, Ohio. Louis W. Campbell is a respected naturalist who has made numerous important contributions to the botanical and ornithological knowledge of northwest Ohio. He distinctly remembers the paper birch tree and shared his memories with this writer (L. W. Campbell, pers. comm. 1981). Campbell stated that a single, large tree of *Betula papyrifera* grew amid dense native vegetation on the floodplain of Gale Run, north of Reed Rd., in either Section 20 or 21, Swanton Twp., Lucas Co. The tree was full of dead wood in 1934 and had died by the summer of 1935. Several trees of *B. alleghaniensis* grew in the immediate vicinity of the paper birch. There was no evidence of an old homesite nearby. This

was the only occasion on which he has seen either of these 2 species of birch in the Oak Openings. He has searched this site in later years for birches but without success. Campbell believed that the tree was native because of its size and because there seemed to be no apparent reason for its having been planted at that site. He confirmed that all 6 sheets at OS were collected from this single tree.

The Oak Openings region of northwest Ohio has been a favorite collecting area of botanists for nearly a century. Moseley (1928) published the first comprehensive catalog of the Oak Openings flora. More recent studies (Easterly 1976, 1979) supplement Moseley's volume. In none of these works is *Betula papyrifera* listed. The absence of this distinctive tree from Moseley's catalog is noteworthy. Moseley was a particularly critical observer of the Ohio flora, and his books are noted for their accuracy and completeness.

The occurrence of *Betula alleghaniensis* at the collecting site for paper birch has been mentioned in passing. This species likewise is not listed for the Oak Openings in the works cited above, nor does Braun (1961) include Lucas Co. in the Ohio range of yellow birch. However, Campbell affirms that a "small stand" of this species was found near the single tree of paper birch. Schaffner (1935) listed *Betula alleghaniensis* (as *B. lutea*) with his *B. papyrifera* report already quoted.

There are 2 Campbell collections of yellow birch at OS; both sheets, according to Campbell, are from the same tree. One specimen (OS 26316) bears twigs and leaves only and is labelled "Oak Openings, Swanton Twp.", 4 July 1933. The other sheet (OS 36317) consists of twigs with leaves and a few aments and is labelled "Swanton Twp.", 26 June 1934, the same date as one set of specimens of *B. papyrifera*. The first sheet cited is not identified as to species, while the second is labelled *Betula lutea* Michx. f. This second sheet has been annotated by Braun (undated) as "? *Betula* X *purpusii* Schneid." Braun (1961) lists this hybrid (*B. alleghaniensis* X *B. pumila* L.) from Lucas and Stark counties. The Lucas Co. report evidently is based upon the Campbell collection. John J. Furlow of The Ohio State University has determined these 2 Campbell specimens as *Betula alleghaniensis*. The hybrid should be excluded from the Lucas Co. flora.

DISCUSSION

Betula papyrifera has been attributed to the native flora of Ohio on the basis of the single tree collected by Campbell in 1934. Paper birch had not been reported from this region prior to that date, and no one has reported another specimen since. The tree was growing with *B. alleghaniensis*, a species which also was not known before nor has been collected since in this part of Ohio. The site where Campbell made his original discovery has been searched by this writer and by other investigators numerous times without success. These circumstances do not lend credence to the indigenous status of paper birch in Ohio. It is interesting to note that at the only known Tennessee station for *B. papyrifera* there also is but a single, large tree (Huber et al. 1977). However, this site is in the rugged Smoky Mountains, far more isolated and less explored than Lucas Co., Ohio. Indeed, the Oak Openings region is among the best known areas of the state, botanically speaking.

The nearest documented stations of *Betula papyrifera* to Ohio seem to be in northwest Indiana, southeast Ontario, northcentral Pennsylvania, and Washtenaw Co., Michigan. The nearest populations of *Betula alleghaniensis* to Lucas Co. are in northcentral Indiana, southern Michigan, and Lorain Co., Ohio (Deam 1940, Little 1971, Wherry et al. 1979).

It is conceivable that the single tree seen by Campbell was adventive from a planted population of birches in the general vicinity of Gale Run. The presence or absence of a homesite is not necessarily material. Many species of birches are planted in order to achieve a "natural" effect. The author has seen a convincingly real population of paper birch in Williams Co.,

Ohio, planted with the intent of appearing to be wild. Perhaps the valley had been seeded or planted with birches as a reclamation effort. The single paper birch may have been introduced inadvertently with the yellow birch. Today the site where Campbell made his collections is a part of the Oak Openings Park of the Toledo Area Metropark System. There seem to be no extant planting records from the early years of this park. However, Estel Wagner of Whitehouse, Ohio, one of the first park employees, did recall that birches of any species were not planted in the park prior to the 1940s (E. Wagner, pers. comm. 1981). Since that time, *Betula nigra* L. has been planted extensively, and that species seems to be spreading along the streams in the park system. Do the records of paper and yellow birches represent earlier, undocumented efforts at reforestation?

The native or non-native status of *Betula papyrifera* in Ohio may never be settled conclusively. However, the basis for accepting paper birch as indigenous to Ohio is tenuous indeed.

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